

CLAIMS

1. A heat exchanger comprising a refrigerant inlet header and a refrigerant outlet header arranged side by side in a front-rear direction at an upper end of the heat exchanger,
5 and a refrigerant circulating passage for holding the two headers in communication therethrough, the inlet header having a refrigerant inlet at one end thereof, the outlet header having a refrigerant outlet at one end thereof alongside the inlet, a refrigerant being flowable into the inlet header from the
10 inlet and thereafter returnable to the outlet header through the circulating passage so as to be sent out from the heat exchanger through the outlet,

the refrigerant inlet being provided in a closing member closing an opening of the inlet header at said end thereof,
15 the closing member having a lower edge defining the inlet and provided with a guide slanting upward inwardly of the inlet header.

2. A heat exchanger according to claim 1 wherein the guide is in the form of a segment of a sphere.

20 3. A heat exchanger according to claim 1 wherein the refrigerant inlet of the inlet header is circular and has an inside diameter of 3 to 8.5 mm.

4. A heat exchanger according to claim 1 wherein the guide has a projecting end face positioned on a slanting plane inclined
25 with respect to a vertical inner surface of the closing member.

5. A heat exchanger according to claim 4 wherein the slanting plane having the projecting end face of the guide positioned thereon makes a minor angle of inclination of 15 to 60 degrees

with the vertical inner surface of the closing member.

6. A heat exchanger according to claim 1 wherein the closing member has a first closing portion closing said end opening of the inlet header and a second closing portion closing an opening at said end of the outlet header alongside the inlet, the first closing portion being provided with the refrigerant inlet and the guide, the second closing portion being provided with the refrigerant outlet.

7. A heat exchanger according to claim 1 wherein the inlet header has a joint plate joined to said end thereof and having a refrigerant inlet portion in communication with the refrigerant inlet of the closing member, the refrigerant inlet of the inlet header having a center upwardly deviated from a center of the refrigerant inlet portion of the joint plate.

8. A heat exchanger according to claim 7 wherein the deviation of the center of the refrigerant inlet of the inlet header from the center of the refrigerant inlet portion is 0.5 to 3 mm.

9. A heat exchanger according to claim 7 wherein the joint plate extends across and is joined to both the inlet header and the outlet header, and the plate has a refrigerant outlet portion communicating with the refrigerant outlet in addition to the refrigerant inlet portion in communication with the refrigerant inlet.

10. A heat exchanger according to claim 9 wherein a refrigerant inlet pipe is joined to the refrigerant inlet portion of the joint plate, and a refrigerant outlet pipe is joined to the refrigerant outlet portion thereof.

11. A heat exchanger according to claim 10 wherein the inlet pipe has a constricted portion formed at an end portion thereof and inserted into the refrigerant inlet portion of the joint plate, and the outlet pipe has a constricted portion
5 formed at an end portion thereof and inserted into the refrigerant outlet portion of the joint plate, the inlet pipe and the outlet pipe being joined to the joint plate.

12. A heat exchanger according to claim 9 wherein the joint plate has joined thereto an expansion valve mount member
10 having two refrigerant passageways communicating with the refrigerant inlet portion and the refrigerant outlet portion respectively.

13. A heat exchanger according to claim 1 wherein the refrigerant circulating passage comprises a plurality of
15 intermediate headers and a plurality of heat exchange tubes.

14. A heat exchanger according to claim 1 wherein the outlet header is disposed in the rear of the inlet header, and the refrigerant circulating passage comprises a refrigerant inflow intermediate header disposed below and opposed to the
20 inlet header, a refrigerant outflow intermediate header disposed below and opposed to the outlet header and a plurality of heat exchange tubes, the inflow intermediate header being in communication with the outflow intermediate header, the plurality of heat exchange tubes being arranged at a spacing
25 between each of the opposed pair of inlet header and inflow intermediate header and the opposed pair of outlet header and outflow intermediate header to provide a tube group in the form of at least one row and constitute a heat exchange core,

the heat exchange tubes of the tube group having opposite ends joined to the respective headers opposed to each other.

15 15. A heat exchanger according to claim 14 wherein the outlet header has interior partitioned by dividing means into first and second two spaces arranged in the direction of height, and the heat exchange tubes extend into the first space, the dividing means being provided with a refrigerant passing hole, the second space of the outlet header being in communication with the refrigerant outlet.

10 16. A heat exchanger according to claim 14 wherein the inlet header and the outlet header are provided by dividing interior of one refrigerant inlet-outlet tank into a front and a rear portion by separating means.

15 17. A heat exchanger according to claim 16 wherein the inlet-outlet tank comprises a first member having the heat exchange tubes joined thereto, a second member brazed to the first member at a portion thereof opposite to the heat exchange tubes and closing members brazed to opposite ends of the first and second members, the separating means and the dividing means
20 being integral with the second member.

18. A refrigeration cycle comprising a compressor, a condenser and an evaporator, the evaporator comprising a heat exchanger according to any one of claims 1 to 17.

25 19. A vehicle having installed therein a refrigeration cycle according to claim 18 as a vehicle air conditioner.